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Original Communications.

FERMENTATION AS A MEANS OF ESTIMATING THE QUANTITY OF SUGAR IN DIABETIC URINE.

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OF the various methods which have been proposed for estimating the quantity of sugar in diabetic urine, those based upon the process of fermentation would seem, from their simplicity, to be best adapted to the wants of physicians in active practice, who, as a rule, have neither the time, nor the apparatus, nor the skill in manipulation, requisite for making a careful quantitative analysis.

The volumetric method by means of a graduated, alkaline solution of potassio-cupric tartrate, first recommended by Barreswill, is, so far as I know, the one most relied on by professional chemists, and thought generally to be capable of yielding the most accurate results.

A careful study of the whole question has convinced me that results hardly less accurate may be obtained from fermentation, and this with so little trouble and expense as to make the subject well worthy the attention of all who have occasion to treat diabetes mellitus.

There are three distinct ways of arriving at the desired result. These I propose briefly to describe, with such additions and corrections as my own researches and experiments have suggested.

The sugar found in diabetic urine is said to have the same composition as glucose, or grape sugar, its formula being $C_6 H_{14} O_7$ (new notation). Under favorable circumstances it readily undergoes the vinous fermentation, the principal products being alcohol ($C_2 H_6 O$), carbonic anhydride (CO_2) and water ($H_2 O$). Granting that these are uniformly the only products, the following equation would represent the chemical changes that take place in the process:—

$$C_6 H_{14} O_7 = 2\ C_2 H_6 O + 2\ C O_2 + H_2 O.$$

From this it results that one grain of sugar would yield $\frac{4}{9}$ gr. carbonic anhydride, which, at a temperature of 60° F., would have a volume of ·9377 cu. in., or 15·37 cu. cents. At a higher temperature, the volume would, of course, be greater, and at a lower, less.

In the first of the three methods mentioned above, a given quantity of the saccharine urine is subjected to fermentation in an ordinary retort, and the carbonic anhydride generated in the process is collected over mercury and measured, the amount of sugar present being determined from this. It has been usual to reckon one grain of sugar for each cubic inch of the gas, instead of ·9377 cubic inch, as above.

Now, here it is assumed that the equation I have given truly represents the chemical changes that take place in fermentation, and that all the gas produced is collected in the usual mode of performing the experiment, neither of which positions is correct. The products of fermentation are not limited to alcohol, carbonic anhydride and water, nor are they uniform. On this point I quote Miller, Organic Chemistry, page 160.

"When sugar is fermented, it is assumed in theory to be wholly converted into carbonic anhydride and alcohol; but in practice this is never the case. It was found, by the chemists just quoted,* in three careful experiments on the fermentation of cane sugar, in which 1½, 3 and 6 measures of yeast were respectively added to 100 measures of the syrup, that 4·4, 3·7 and 3·72 per cent. of the sugar were converted into a brown, soluble substance resembling caramel, and at the same time a little free lactic acid was formed. Pasteur (*Ann. de Chimie*, III. lviii. 323) finds succinic acid to be produced, equal in quantity to not less than 0·5 per cent. of the weight of the sugar employed. The same chemist also states that glycerin is one of the usual products of the alcoholic fermentation, the quantity sometimes amounting to three per cent. of the sugar employed. These are obviously secondary results, due, probably, to the gradual passage of the ferment through different phases of decomposition."

* Graham, Hoffman and Redman.

It is easy to believe that a difference in temperature, or in the character and amount of yeast employed, or in the strength of the saccharine solutions, may make a corresponding difference in the products of fermentation. And just so far as there is a liability to variation in them, this method of estimating the amount of sugar becomes unreliable.

Besides, the gas is not all collected. Water, at a temperature of 60° F., dissolves its own bulk of carbonic anhydride. At a higher or lower temperature, the amount absorbed is less or greater. Admitting that urine has an equal absorbent power (and it is probably a little greater after fermentation, owing to the alcohol present), the gas would not begin to show itself until all the liquid had been saturated with it. One fluid ounce has a volume of 1·733 cubic inches. Supposing that our specimen of urine contained two grains to the ounce, and not taking into account the errors arising from the uncertain nature of the chemical changes, we should get from the fermentation of one ounce of urine ·142 cubic inch of carbonic anhydride, which would indicate a strength of ·151 grain of sugar to the ounce, an error of 1·849 grains, or 92·45 per cent. of the whole. The percentage of error would be the same whatever the amount of urine employed. Were the strength of the saccharine solution greater, the error would be relatively less, but yet always sufficient to vitiate our result to an important extent. It may be corrected by adding the volume of the liquid to that of the gas, taking care that the temperature be 60° F. when the observations are taken. Then the number of cubic inches in the sum will give us roughly the number of grains of sugar in the amount of urine employed. If greater accuracy be desired, divide the sum by ·9377, or, what is the same thing, multiply by its reciprocal 1·066, and the quotient will be the result sought.

If the urine contain less than 1·849 grs. to the ounce, no gas will appear, and hence this method would fail to indicate the amount. The same remark applies to the second method, viz.: that proposed by M. G. Bergeron, in a paper presented to the Société de Biologie of France in 1866, which is briefly as follows:—

An estimated solution of glucose is fermented side by side with an equal quantity of the saccharine urine to be examined; the relative quantity of carbonic anhydride produced by each will give us the relative strength of the solutions, and the unknown can be calculated from the known by a simple proportion. In this way we plainly get rid, to a large extent, of the errors arising from the variable nature of the chemical changes; for as the temperature and ferment are the same for both solutions, we may suppose the products of fermentation relatively nearly or quite the same in each, so that our result would not be affected. Besides, any variation in temperature from the standard, at the time of observation, would affect the contents of each tube in proportion to bulk, so that no error would arise from this source. And there is much less danger of a false result from imperfect or incomplete fermentation, and from incorrect observation, inasmuch as in every case there would be two errors, one for each tube, which would always tend more or less completely to neutralize one another.

It is quite necessary here, as in the other case, to take account of the gas that has been absorbed by the liquid, for it is too large a quantity to be deducted from the terms of a ratio without producing a sensible error.

M. G. Bergeron performed the experiment by using two graduated glass tubes, blind at one end, such as are sometimes employed by chemists for the measurement of gases. These were filled with the solutions, a small piece of fresh yeast was dropped into each, and then they were inverted into a vessel of mercury, a thumb or finger having been placed over the end of each tube to prevent the entrance of air. When kept in an upright position, it is plain that the liquid would be retained in the tubes by the pressure of the air on the surface of the mercury; and that when the gas began to accumulate in the upper part of the tubes, it would displace the liquid downwards.

There are two practical objections to this mode of operating, which I have endeavored to obviate in the manner described below.

The first objection is, that it is exceedingly difficult for an inexperienced person to invert the tubes, when full, in such a way as not to allow the entrance of air, an occurrence that would destroy the value of the experiment. The danger may be completely avoided by using a tightly fitting rubber cork, firmly fastened into a flat piece of hard rubber with a discharge-duct leading down through the centre of the cork and out at the side of the cap. The corks should be of exactly the same length, so that the relative quantity of liquid in the two tubes may not be disturbed. When the tubes are filled to the brim and the corks inserted, the superfluous liquid will run out through the ducts. These being

closed with the fingers, or better, stopped with small plugs, the tubes may be inverted, or placed in any position, without the entrance of air or escape of liquid. The caps once beneath the mercury (it should always cover them), the plugs may be withdrawn.

The second objection is, that the solutions being expelled by the accumulating gas, the quantity under fermentation is constantly diminishing; and if they are of different strengths, as they generally will be, one diminishes more rapidly than the other, so that the larger result is always less than it should be, and *vice versa*. Of the various devices which have suggested themselves to my mind for keeping the quantity of solution under fermentation uniform, the following seems the most simple and effectual:

The tubes are filled about two thirds full of mercury, and the remainder with the saccharine solutions. When the corks are inserted and the tubes inverted, it is obvious that the mercury will occupy the lower part of the tube and be first expelled as the gas accumulates.

The tubes I use are about 12 inches long and hold 50 c. c. The same length with half the capacity would be preferable. They should be graduated to cubic centimetres and fifths or tenths. I have fastened mine into a kind of framework which is very convenient for keeping them firmly in an upright position. It lifts off from the vessel containing the mercury.

The standard solution can be made by dissolving pure glucose in water; 4 or 5 grs. to the ounce is a suitable strength. The urine, if it contain a large proportion of sugar, as indicated by the specific gravity, should be diluted with from 2 to 6 times its bulk of pure water. A glass funnel is needed for introducing the mercury into the tubes; or, if that is not at hand, a substitute can readily be improvised by folding a piece of letter paper into the proper shape. For a ferment the ordinary cake yeast may be employed. It should be well soaked up in warm water, and then strained through muslin. An equal quantity of the pasty mass which passes through should be added to each tube. The temperature most favorable for fermentation is about 80° F. The apparatus can be placed anywhere in the house without annoyance.

Suppose now our tubes to be filled in the way directed, the first one (A) containing the standard solution (4 grs. to oz.), the other (B) the urine, diluted with its volume of water, of each 14·2 c. c., made up to 15 c. c. by the added yeast. After fermentation let the gas in A stand at 15, in B at 30. We read, however, from the surface of the mercury, which gives us for A 30, for B 45, showing that the urine is one-half stronger than the standard solution, or contains 6 grains to the ounce. As it had been diluted with an equal bulk of water, its original strength was 12 grs. to the ounce. Had we read from the surface of the liquid we should have found a strength of 16 grs. to the ounce, an error of 33⅓ per cent. of the true result. From this we see the importance of adding the bulk of the liquid to that of the gas before making our estimation. Any little error like that arising from the different amounts of alcohol present in the two tubes would be inappreciable in the result. It is necessary to wait until at or near the close of fermentation before observing, for, as a series of carefully conducted experiments has convinced me, fermentation does not advance at a regular rate, even when the temperature and ferment are the same. At the close of the process, however, the quantity of gas is in proportion to the amount of sugar.

With this apparatus the first method can always be used as a check on the second. In the case supposed, if we apply it to the first tube we ought to prove a strength of about 4 grs. to the ounce. The amount of gas and of liquid is given us in the cu. cents. and hence the estimation can readily be made.* If the result be not correct, there is some fault in the experiment. But if correct, then the calculation applied to the other tube will give us nearly the same result for it as before, unless some mistake has been made.

Thus by combining the two methods we get practically a greater degree of accuracy than from any other plan in use.

A third method has been proposed by Dr. Roberts of Scotland. It consists in taking the specific gravity of the urine before and after fermentation. One degree of reduction on the ordinary urinometer scale indicates one grain of sugar. This Dr. Roberts calls the "clinical method." It is quite valuable often as a rough means of determining the amount of sugar in urine, and, indeed, with a specific gravity bottle, and a fine balance, it is susceptible of a good degree of accuracy. But there is one source of error which cannot be avoided, viz.: that of the uncertain nature of the chemical changes, which will obviously give us a liquid after fermentation, in one case of one specific

* ·9377 cu. in. = 15.37 cu. cents. One fluid ounce = 28·4 cu. cents. By first method A shows a strength of 3·902, B of 11·68 grs. to the ounce.

gravity, in another of another, not corresponding to the amount of sugar in each. Besides, the fermentation being effected in an open vessel, it is not so agreeable an experiment to perform in a physician's office or dwelling house as is the one just described, where there is no possible chance for the escape of offensive odors.

For these reasons I recommend the method of M. G. Bergeron, with the modifications and improved apparatus which I have described, as the one best fitted for general use among physicians.

CASE OF RUPTURED PERINÆUM TREATED BY A NEW METHOD. (MASS. GENERAL HOSPITAL; SERVICE OF DR. S. CABOT.)

Reported by Mr. Josiah L. Hale.

In the number of this Journal for August 16th, 1866, Dr. Cabot reported two cases of "Ruptured Perinæum successfully treated by a New Method." Since that time he has operated in six cases, and has varied the method by increasing the number of needles used from *four* to *eight* (in the eighth case), and by the omission of deep sutures. Of the eight cases, one only has failed of success, and in that the operation was performed, at the earnest solicitation of the patient, while specific ulcerations were present on the parts.

In the eighth case, the patient, a widow, aged 52 years, very stout, had a rupture extending above the internal sphincter ani muscle, and with prolapse of uterus. The ruptured surfaces were so widely refreshed that the vagina barely admitted the index finger. In this case, there was union of the entire surfaces by first intention.

The following case, the sixth in order of operation, was the first in which no deep sutures were used.

E. W. S., aged 34 years, entered the hospital Dec. 5th, 1867. Her first child weighed eleven pounds, and at its birth her perinæum was completely ruptured. Two years later, an operation was performed for her relief, but was unsuccessful. She has borne three children since. Patient has become much emaciated from almost constant diarrhœa. There is also prolapsus uteri, but not enough to cause her much discomfort.

Dec. 8th.—Operation, with ether, by Dr. Cabot. Patient was placed in lithotomy position. The opposite surfaces of the lacerated parts were freely denuded of their mucous membrane, and the edges of the rupture of the anus refreshed. Ice was used to check the hæmorrhage. The sphincter ani muscle was divided on each side, about an inch from the coccyx. Three darning needles were then passed through the perinæum, on each side, about one fourth of an inch from the rupture, and their points inserted into an almond-shaped piece of cork in such a way as to make the corresponding needles of the opposite sides parallel, and to bring the refreshed surfaces into close apposition. The outer ends of the needles were fastened together in pairs. The posterior pair of needles were so placed as to keep the edges of the anal mucous membrane in apposition, and the anterior pair to approximate the edges of the vaginal surface. No deep sutures were used. Superficial sutures were placed between the needles, at the fourchette and on the vaginal surface. Pieces of pasteboard were placed on either side, to support the extremities of the needles, and lint to protect the soft parts. Patient was placed on her side in bed, with her thighs flexed. Catheter to be passed p. r. n. ℞. (Smith & Melvin's) elix. opii gtt. xxx. p. r. n.

9th.—Considerable pain and swelling about the parts.

10th.—Sutures removed from perineal surface, and the connection between the external ends of needles severed. Wound uniting by first intention. Dressed with lint soaked in glycerin.

11th.—Ulceration threatened near one of the needles, and they were all withdrawn. ℞. Ferri sulphatis, ℥i.; acid. sulph. dil., ℥i.; aquæ, ℥iv. M. S. ℥i., diluted, ter in die.

13th.—Sutures removed from vaginal surface. Catamenia present. There is a superficial ulceration where one of the middle pair of needles was inserted. Dressed with lint wet with carbolic acid (sat. sol.).

14th.—Patient allowed to pass urine on a cloth, as the parts are irritated by passing the catheter.

15th.—The new adhesions have separated for half an inch at the fourchette; cause not known. Omit carbolic acid. Wash wound with tinct. myrrhæ, ℥i.; aquæ, ℥ix. M.

17th.—Ulceration grayish and unhealthy. ℞. Vini Xerici ℥ij. ter in die. ℞. Quiniæ sulphatis gr. ij. ter in die. ℞. Potassæ chloratis, ℥ss.; acid. muriatici, ♏xlv.; aquæ, Oi. M. Apply q. s. on lint to wound.

18th.—Ulceration nearly covered with florid granulations.

19th.—Last night, patient had a large, solid dejection, causing much pain, but no injury to the parts. Ulceration healthy.

20th.—Beefsteak and full diet.

21st.—Another dejection, without pain. May move limbs freely.

25th.—Ulceration healing rapidly. Sat up one hour.

28th.—Patient up most of the day. Walks about room.

30th.—Discharged, cured.

SEVERE NEURALGIA OF THE TONGUE. EXCISION OF THE LINGUAL NERVE.

By M. VANZETTI.

Translated from the Gazette des Hopitaux, Jan. 21, 1868, by S. G. WEBBER, M.D.

AMONG the neuralgias of the branches of the trigeminal, that affecting exclusively the lingual nerve is one of the least frequent, and physicians of much experience have seen no example of it; also, science possesses up to the present moment only very few cases of excision of the lingual nerve on account of this neuralgia. It is known that this operation was performed for the first time by M. Borer, and then by M. Linhart.

M. Michel (of Strasbourg) published in 1857 (*Gazette Médicale* de Strasbourg, Nov., 1857) a very good case of excision of the lingual nerve through the floor of the mouth, an operation since performed, according to the same method, by M. Boeckel. In 1850, Mr. Hilton had the happy idea of excising the lingual nerve through the floor of the mouth to relieve the sufferings of a patient with cancer of the tongue (Guy's Hospital Reports, vol. vii., 1st series, 1850). Mr. Moore, of the Middlesex Hospital, repeated the operation a few years since, excising the nerve while it is still attached to the upright branch of the inferior maxillary, in the midst of the internal pterygoid, combining this operation with ligature of the lingual artery of the same side (Holmes's Surgery, vol. iii., p. 915). Having ourselves had occasion to excise this nerve on account of neuralgia, we believed it would be interesting to publish the following case.

Piva M., of the village of Legnago, aged 64, mother of twelve children, came to our consultation on the 18th of November, 1862, seeking advice on account of the pain which she experienced intermittingly in the mouth and lower jaw, especially when she eat. The data furnished by this patient were very confused. We found, after careful examination, no appreciable alteration in the region said to be painful. The diagnosis of a neuralgia was made, but without being able to determine its exact location; it might be in the lingual nerve, it might be in the inferior dental. The patient referred to no well-defined sensitive point, nor did examination discover any. She dated back the origin of her suffering about a year, just after an inflammation of the right cheek, which had been followed by an abscess in the mouth, which was incised. A very persistent fistula remaining at the seat of the abscess on the left tonsil, and pains beginning to appear, this point was cauterized three times with a red-hot iron.

We induced this woman to remain in the ward, and, at her entrance, injected sulphate of atropia under the buccal mucous membrane. The symptoms due to atropia were soon manifested to a sufficiently marked degree, and the patient felt, during the first days, considerable relief. A week after, the pains having returned with their original intensity, we proposed making a second injection; but the patient obstinately refused, telling us that she had not come to remain in the clinique. Returned home; her pains continued more or less during the year 1863, and became more violent still at the commencement of 1864. The injections of atropia, employed anew, cauterization of the ear, and many other remedies, were inefficient.

On the 24th April, 1864, the patient, bearing a letter from Dr. Maggioni, her physician, returns to the clinique to stay. This time she described to us her suffering very differently. Indeed she was, so to speak, pre-occupied with a single purpose; that was to persuade us that all her pain arose from a bridle situated beneath her tongue, which, by restraining its movements, caused her all her pain. She also often put her tongue out of her mouth, turning up the lip, to show us this bridle, touching it with her finger. There existed, in truth, on the left side of the frenum, a very prominent fold of mucous membrane, quite like a second frenum, but not at all restraining the movements of the tongue.

To satisfy the patient I made a cut with scissors through this bridle which occupied her attention so much. After that little operation, to our great surprise, all pain ceased, which caused us to believe that, in fact, that fold was the seat of the neuralgia. The patient, well satisfied, left the clinique on May 20, 1864.

She remained well and felt not the least pain until January 28, 1866. On that day it seemed to her as if the left half of her tongue was thickened, she felt there a strange pricking, and the following day she had difficulty in eating and speaking. Two days after to these particular sensations was united a gnawing pain, extending from the tip of the tongue along its left side to the

corresponding pillar. This pain appeared and immediately became intolerable when the patient eat, drank, spoke, in a word, at each movement of the tongue.

Such a painful condition, persisting in spite of the employment of morphine, hypodermic injections, &c., caused the patient to apply for the third time to the clinique on March 9, 1866. Her sufferings were cruel; she passed the nights without an instant of rest, she shed tears each time that, pressed by hunger, she sought to take any little nourishment; and still, to be able to swallow, she gave her head particular positions, pushed with much precaution, even into the œsophagus, the alimentary bolus, which she had formed into a ball, causing it to pass over the right side of the tongue; then she raised and bent her head backwards very suddenly to cause it to descend. In order to drink she applied the end of her tongue to the glass and pressed it there with the lower lip. During the day the pains were less severe than at night.

From 9th of March to 3d of April, opium, iodide of potassium, arsenic, ice, acupuncture, local anæsthesia with the apparatus of M. Richardson, electricity, &c., were tried but without success. We then remembered that, in 1864, the simple incision of some millimetres, made under the tip of the tongue, where the pain seemed to be localized, had caused it to disappear during about two years.

We made then, on April 3d, an incision, which this time was extended along the whole of the left side of the tongue to the pillar. The patient experienced a very great relief from it. She could speak and eat without suffering, and passed her nights in refreshing sleep, so that her constitution, very much reduced by the pain, the want of nourishment and of rest, began sensibly to improve.

Unfortunately this happy improvement lasted only fifteen days. The patient herself, perceiving the injurious effect of cicatrization, desired us to prevent it. The pain returned when the incision had cicatrized, and on April 24, was as severe as before, extending even from the tongue to the gums, and to the temporo-maxillary articulation.

April 27th, the patient is subject to excessively severe pain, which extends to the cheek, to the ear and along the entire left side of the neck. She complains of diminution of sight and diplopia. To alleviate these sufferings she is etherized several times a day.

May 2d, the patient is very much debilitated, she groans and weeps continually, and in attacks of despair desires to obtain relief in any manner whatever.

I decided to perform resection of the lingual nerve.

Taking advantage of a calm moment, the patient was conducted to the operating room; seated in a chair, her head was confided to an assistant who pressed it against his chest. The mouth was opened as much as possible, the right angle of the lips was drawn back by Luer's retractor; the tongue seized by the tip was drawn out and held by an assistant to the right and upwards. I then made an incision three or four centimetres in length with a small slightly convex knife, commencing beyond the last molar and extending from behind forwards, a little inwards towards the left side of the tongue in the groove between the tongue and gums. This incision commenced behind the anterior pillar of the velum palati, which being very prominent was divided, in order to reach as well as possible the point where the lingual nerve, turning round the anterior border of the pterygoideus internus, has a direction forwards and is horizontal.

At each stroke of the knife the blood was stanched with small pieces of sponge fixed on rods; the wound was enlarged by successive incisions, one lip being held aside by fine forceps, until a white cord was met which I recognized as the lingual nerve. I carefully dissected it out to the extent of two centimetres; then raising it a little with a blunt hook, I cut first towards its root, then towards the distal end.

When the nerve was cut, the pains ceased, not again to appear. The day after the operation, the patient spoke and took nourishment without suffering. On the third day, there was a slight traumatic swelling under the angle of the jaw on the side of the incision, which was cicatrized at the end of a week.

May 13th, twelve days after the operation, the patient, very well satisfied and very grateful, returned home in a state of perfect health.

The portion of the nerve resected was two centimetres long, and was adjacent to a small portion of Wharton's duct. Towards one of its extremities, my honorable colleague, M. Vlacovich, Professor of Anatomy, has recognized, under the microscope, the presence of the nervous corpuscles of the sub-lingual ganglion, whose existence has not yet been acknowledged by all anatomists. The structure of the nerve is normal.

Having lately inquired of M. le Dr. Mag-

gioni, Physician of the Opera, information on her condition, I have received in reply the following letter:—

"LEGNAGO, August 24, 1867.

"The person on whom you operated sixteen months ago has always enjoyed perfectly good health since, forgetting her excessive suffering, and blessing the hand which has given back to her her health. She complains of a more abundant salivary secretion than formerly. I have found it very alkaline.

"According to your request, I have pricked the left side of her tongue with a pin; she felt scarcely any painful sensation, while she experienced a very lively pain when the right side was pricked. I have applied on the side operated upon, extract of quassia first, then sugar, without her having the perception of the respective taste of these bodies; the right side, on the contrary, distinguishes very well and quickly the difference in their taste.

"I have the honor to be, &c.,

"DR. EVANGELISTE MAGGIONI."

Hospital Reports.

MASSACHUSETTS GENERAL HOSPITAL.

Surgical Operations for the week ending March 14th. Reported by Messrs. RUFUS P. LINCOLN and JOSIAH L. HALE, Jr.

(Continued from page 167.)

11. *Shoulder Dislocation; Reduction.* Dr. R. M. HODGES. Male, aged 60. One week's duration. Fell, and struck upon his right shoulder. He immediately commenced to have pain in the region injured, and had only partial use of his arm until his entrance; when, upon examination, there was found the usual deformity produced by the sub-coracoid luxation—loss of roundness of shoulder, tumor in axilla, and inability to bring the elbow to the side. The patient was seated upon the floor, the arm grasped by an assistant and slowly elevated, the shoulder being at the same time depressed by the foot of the assistant. This movement failed. The arm was again elevated, and then in the same manner lowered, by Dr. Hodges, he at the same time tilting the head of the bone into its socket by using his left hand as a fulcrum.

12. *Compound Comminuted Fracture of both Legs; Double Amputation.* Dr. R. M. HODGES.—Male, aged 60. Accidentally fell, so that the wheel of a heavy team passed over both feet and ankles, crushing and mangling them shockingly. There had been considerable hæmorrhage, which was checked temporarily by the application of tourniquets. The right leg was amputated at the junction of the middle and lower thirds; and the left one in the middle third, by the circular method. The arteries were ossified.

Operations for the week ending March 21st.

1. *Hip-joint Dislocation; Reduction.* Dr. R. M. HODGES.—Male, aged 45. Fell from a car while it was in motion. His left foot caught, and he was dragged for a short distance, when, his cries attracting attention, the train was stopped. Upon examination, a slight contusion was found just below the great trochanter of the right femur, and another one over the external malleolus of the same limb. The left foot was inverted, and rested upon the dorsum of the right. The knee was turned inward, and the limb partially flexed. Reduction was accomplished, by manipulation, at the first effort.

2. *Necrosis of Malar Bone.* Dr. H. G. CLARK.—Male, aged 25. The patient has syphilitic paralysis, nodes, rupia, &c. Two communicating fistulæ under the right eye lead to dead bone. The sinus was laid open, and the necrosis removed with the gouge.

3. *Tumor of Superior Maxilla; Excision.* Dr. H. J. BIGELOW.–Four months ago, a small tumor made its appearance midway between the left ala of the nose and the internal angle of the eye. It gradually increased, involving successively different portions of the superior maxillary region, until within three weeks, since which time the superficial portions had grown very rapidly, two large protuberances having formed just below the malar bone. The left nostril was occluded, and vision was obstructed by the mass protruding in front of the eye. Its surface was nodulated, and the integument thin and quite vascular over the most prominent portions. To the touch, the growth was elastic. A curved incision was made through the cheek from the commissure of the lips to the superior border of the zygoma, and the flap thus formed reflected to the edge of the orbit. The first incisor tooth of the left side was extracted, and the external orbitar process at its junction with the malar bone, the zygomatic arch and the ascending nasal process of the upper jaw, were successively divided by the saw and forceps. The horizontal portion of the maxilla was divided from before backward with Liston's forceps—one branch in the mouth and the other in the nares. The

soft parts were detached from the floor of the orbit, and with flat cutting forceps, carried from before backward on the floor of the orbit and from above downward, the superior maxillary nerve and the connections of the bone with the pterygoid processes were divided. The bone was found imbedded in a nodulated mass of pale, granular and friable material universally adherent to the surrounding tissues. Four large vessels required the ligature, and a considerable oozing was checked by a solution of the persulphate of iron.

4. *Necrosis of Lower Jaw.* Dr. H. G. Clark.—The patient, a scrofulous child, 7 years of age, has necrosis resulting from a carious tooth and alveolar abscess a year and a half ago. The jaw is immensely enlarged, and there are two fistulous openings on the left side over the ramus. The sinus was laid open, rendering it necessary to cut the facial artery, which was tied. Several pieces of dead bone were removed, including the angle of the jaw. Sponge compress inserted.

5. *Necrosis of the Ilium.* Dr. H. J. Bigelow.—Male, aged 24. While in the army, was wounded by a bullet striking upon the external condyle of the left humerus, penetrating the joint and imbedding itself in the left buttock. A stiff joint resulted from the wound of the elbow. The wound of the buttock did not heal, and several fragments of necrosed bone were discharged from time to time. A number of attempts made to extract the ball through the original opening resulted unsuccessfully. Three years ago, a counter opening was made five inches below the original wound, in the direction of the anus, and the ball extracted. The wound healed in two months, but the original wound remained open, occasionally discharging small fragments of necrosed bone. Upon examination, after entrance, there was found, one inch behind and below the superior spinous process, a fistulous opening communicating with roughened and denuded bone, in the form of a linear depression of the diameter of the ball and in the line of its course. A depressed and radiated cicatrix marked the point from which the bullet was removed. The point of a probe passed into the original wound could be felt about an inch beneath the integument, four inches below the point of insertion and in the direction of the course of the ball. An incision was made through the tissues lying upon the point of the probe, which was then withdrawn and a director substituted. As the disease seemed to be limited to the space between the two openings, they were connected by one straight incision, and the two wales retracted by means of copper spatulæ, exposing the roughened surface and some minute fragments of lead. The whole diseased portion was removed, in thin sections, by means of a gouge and chisel. At one point, where there was greatest depression, the bone was perforated for a space of about an inch in diameter, the disease having involved both tables. In nearly every section of the bone were minute fragments of lead, appearing as though the region was infiltrated with it.

Bibliographical Notices.

The Law of Human Increase: or Population based on Physiology and Psychology. By Nathan Allen, A.M., M.D., Lowell, Mass. New York: Moorhead, Simpson & Bond. 1868.

The title of this essay seems to us not justified by its contents. It is rather an exposition of the author's belief as to the causes leading to an assumed physical degeneration of American women. The "law of human increase" in any community is, as we understand it, the law governing the balance between births and deaths. Fertility is one element in this question; yet regarded alone, and without reference to the duration of life, it proves nothing. The lower orders of society, the unskilled laborers, living under conditions unfavorable to life, are everywhere, in Europe as well as in America, more prolific than the classes removed from poverty, and whose sanitary surroundings are good. But it is a great error to suppose that the law of human increase can be reached by a mere reckoning of the number of children born. Even if we could know the number of births in any class in the last century (which there are absolutely no means of doing), the information would be without value, as illustrating the law of increase, without a corresponding record of deaths, ages, and existing population. Our author *assumes* that the women of New England, two or three generations ago, were stronger, larger, and more healthy than the women of the present day. This is an exceedingly difficult thing to prove. We know of no way in which it can be accomplished, or even approximated. Mere opinion or hearsay cannot certainly be received as conclusive in a question like this. Everybody

knows the tendency which has always existed, and which always will exist, to depreciate the present generation and exalt the past. It is apparent enough in the literature of all ages of the world; neither more nor less now than two centuries ago. Yet Englishmen of the present time find the armor of their ancestors rather too small than too large for them. In 1860, it might have been assumed that the young men of New England had lost the sturdy vigor of their ancestors of the Indian, French, and revolutionary wars; that they had become comparatively feeble and enervated, and could never bear hardship and toil and danger as their grandfathers had done. But who believes this in the light of present experience? and why should not the other sex of the same generation share in the vindication which the war has given of the soundness of the stock to which they both belong?

Assuming that married life and the production of children are the primary objects of woman's creation, and *assuming* that our American young women are very poorly organized and feeble creatures (both of which assumptions we respectfully commend to the notice of the editors of the "Revolution," the special advocate of women's rights), Dr. Allen proceeds to give the following definition of that much distorted semi-physiological term, temperament. "For the sake of convenience and illustration, we shall here adopt the division made by some writers on the human body into four distinct compartments, called temperaments.

"First division; the brain, the spinal column, and nerves of motion and sensation scattered through the body, called the nervous temperament.

"Second, the heart, the lungs, and all the bloodvessels in the system, called the sanguine temperament.

"Third, the organs in the abdomen, the stomach, bowels, liver, and absorbents, called the bilious or lymphatic temperament.

"Fourth, the muscles, bones, ligaments, constituting the motive power of the system, called the muscular temperament.

"In other words, these divisions may be distinguished by the following terms: the Head, the Thorax, the Abdomen, the Framework of the body; as the organs comprising these temperaments have their seat in those parts."

This is certainly original, and no "writers on the human body" need be referred to. Dr. Allen applies these "temperaments" to the young women of the present time, and finds them developed in their persons in very unequal degrees. The key to a sound constitution, perfect health and long life, he discovers to be a perfect balance of these temperaments in the individual. This he unhappily seldom meets with, and attributes the absence of this "well tempered" organization to the fact that young women prefer frivolous amusement to "housework," that they lace too tightly, and that they read and study too much. He also discovers "that it is upon this harmonious balance of temperament that the great laws of human increase, or of population, are based."

No reference is made to the influence of preventable diseases, to overcrowding, to impure air, to all those unwholesome influences which it is the province of sanitary economy to remove, as affecting human increase. "Temperament" does it all.

D.

Medical and Surgical Journal.

Boston: Thursday, April 23, 1868.

THE BASIS OF A MEDICAL EDUCATION.

Having attempted to show, in a previous article,* that a preliminary education was of great importance to the student of medicine, and that a prolonged study of the ancient languages should not prevent a proper attention to modern ones, we come now to inquire to what branches the student had best turn his attention.

Of all preparatory studies, we conceive that the so-called natural sciences tend most to form the habit of thought requisite to the physician. The Doctor must not be a book-worm. Nor must his other faculties be educated at the expense of his perceptive ones. And yet in the early training of our schools and colleges how little are the latter exercised! To use language correctly; to commit various useless branches of knowledge in order to strengthen the memory; to exercise his reasoning powers over mathematics—all these are useful, but they add nothing to his powers of observation.

Education, we are told, teaches us to forget; that is to say, it instructs us in general principles, by a series of lessons, whose

* Editorial, March 26.

details we are not expected to retain. All this is useful as a mental discipline; and, as such, it is essential that youth should go through it. But to learn by study is quite different from learning by observation —and the latter is the only mode by which we learn disease.

Experience is the collation of separate observations; and he is called an experienced physician who has made the most of such observations. To be able to compare, revise and deduct from what he sees, he must have a previous general education. But first of all he must observe—he must see. To the experienced eye, and ear and touch, every phase of sickness, and every change in the sick man's face, is full of meaning. We can well believe that the older observers could diagnosticate very passably the different affections of the chest without the use of physical signs. The position, the color, the form, the expression, the breathing, the pulse, the tongue, and even the smell of the patient, indicate, often, his disease, and not only its nature but its gravity. To him with sharpened senses and cultivated perceptive powers, it is an open book. To the mere student, the book-doctor, it must remain a sealed one. No amount of reading, of study of authorities, or of others' descriptions, can solve the problem which lies before him.

In the sickness of little children, the pure student's difficulties increase until they become insurmountable; and unless he changes his mode of investigation, he can never learn the secret of their symptoms and their sufferings.

So, too, the variations which many cases of actual disease present from the typical one laid down in the books, must puzzle him still more.

What shall give us insight, and thence foresight, among the sick? What faculty is possessed by this or that man who can "see into a case"? What do we mean, in other words, by intuition? Intuition in the diagnosis of disease is the sum of all knowledge compared; is the aggregation of experience, digested and assimilated; is the elimination and excretion of useless elements, and the retention only of essential points. To this is to be added a cultivated perception—more or less good originally, but trained by use.

The perceptive faculties are to be cultivated far differently than by reading books. Little children learn by observation; and so must we older children in our professional schooling. It is true, that when we enter fairly upon the study of medicine we mingle practical and clinical observation with the reading of authorities and ordinary study. But it is with the preliminary training that we have to do now.

Natural history, botany, comparative anatomy exercise directly the perceptive faculties. Chemistry and physics cultivate a spirit of wholesome scepticism and a habit of experiment, or trial, which lead to exactitude in conclusions and to a practical turn of mind, as differing from a theoretical one. In so far as they do this, they are of greater importance to the future student of medicine than languages or general literature.

The wood-craft of the savage guides him by signs unintelligible to the civilized man. The habits of observation of the naturalist fix in his attention minute differences, which escape the notice of the student of books. A knowledge of human nature, also, is essential to the physician, and it is only to be acquired by out-of-door mingling with the world.

Could we, any of us, return to those earlier years when the choice of a profession had not yet turned our attention to particular points; and could we, even then, know that we were to become physicians, we should all of us, doubtless, desire to change our preparatory studies somewhat. General drill in books, in languages, in mathematics, in logic, in learning to express our thoughts, we would not neglect, but we would modify them. The classical curriculum of the college we would temper with the scientific and technological school. It were better to know Greek less and German more. It were better to know history and logic less, and natural history and physics more. It were better to see beyond books; to look nature in the face, and begin, thus early, to question her secrets. It were better to exchange mere studiousness for observation, and to learn by what we see, as well as to be taught by what we read.

DEATH OF DR. JOHN HOMANS.—The sudden death of Dr. JOHN HOMANS will awaken a universal feeling of regret. Though full of years and honors, he was yet an active man; and he was still filling so many offices of trust and usefulness to the profession and the community, that his loss will be widely felt. We must leave to those who were long his friends and intimates the melancholy task of writing a more complete history of his life and virtues, and content ourselves now with this brief notice to indicate the loss we have sustained.

DIED,—In Cincinnati, Ohio, JOSEPH FITCH POTTER, M.D., an eminent physician and a most estimable man, aged 59. From a well-written and elaborate sketch of his life in the *Cincinnati Commercial* of April 13, we select a very few of the leading facts connected with his professional career:—

Dr. Potter was born in Sebago, a small agricultural town in the south-western part of Maine, Nov. 28, 1808. After exhausting the resources of the public schools in his native town, a year or two was spent in a neighboring academy, and three years in the Wesleyan Seminary at Readfield. By the advice of the family physician, at the age of twenty-two, he commenced the study of medicine. He went about it in a way that was a prophecy of success, determined to obtain the best medical opportunities the country then afforded. During the five years ending in 1835, young Potter studiously carried out his plans, attending five courses of lectures, one at Dartmouth College, New Hampshire, and four at Bowdoin College, in Maine, where he received his degree. He also spent considerable time in the Marine Hospital, at Boston, under the eye of the celebrated physician and surgeon, Doctor Charles H. Stedman. His first field of labor was at Kendall's Mills, a thriving village on the banks of the Kennebec River, three miles above Waterville, Maine. In the spring of 1839 he removed to Waterville, and soon found himself in the midst of a growing practice. But in 1840 he closed his office and went to Philadelphia for further study, attending a course of lectures at the University at Pennsylvania. At this time the operation of dividing the muscle of the eye for strabismus was being first performed in this country, also the dividing of tendons for deformed feet. Dr. Potter witnessed these operations, and providing himself with instruments, was probably the first to perform them in his native State. At this time, at the age of thirty-six, he was regarded as one of the rising physicians and surgeons of that portion of the country. But his desire to make himself worthy of his noble profession, urged him to new efforts for culture. By hard labor and economy, through eight years of a New England practice, he earned money enough to spend two years in Paris. The great metropolis was only to him a larger college. He missed his daily visits to the hospitals but seven times in these two years, acquired a thorough knowledge of the French language, made large additions to his library and surgical instruments, and at the mature age of thirty-eight he was prepared to step into his final place of action. By the acquaintance of some Cincinnati physicians, he was induced to visit the West, and on the 21st day of December, 1846, he established himself in this city, where he has toiled as few other men have labored, for the past twenty-two years, till stricken by fatal disease at the age of fifty-nine.

Dr. Potter was a full grown man, intellectually and morally, when he came West, and he has done a work of which any man may be honorably proud, and which this community will not forget. His excellent qualities were at once appreciated, and he soon found himself in a thriving practice, in what was then the most rapidly growing and best known of Western cities. Since 1846 Cincinnati has changed from a smart provincial town to a great city of a quarter of a million of people, the metropolis of a vast and fruitful region. His merits may be understood, when we say that the city never outgrew the man. At first he seems to have contemplated a special career as a surgeon, and he began the habit of reading medical lectures, but he was speedily swept away by a flood of valuable family practice that always increased upon him, giving him no rest, until he fell and died in the harness, one of the strongest of men worked to death. In August, 1852, he received the degree of Master of Arts, from Waterville College in his native State. The life of Dr. Potter during the last twenty-two years, has been a daily history of ceaseless toil among the people of this city. Blessed with a constitution of remarkable power and flexibility, a true son of New England in his love for toil, remarkable for his readiness to seize on any thing to be done, with his admirable method and dogged persistence, he was able to perform an amount of labor that would speedily have broken down many able men. For the last fifteen years he had not been

able to attend to all his calls on any day; and the names of more than one thousand families were on his books. Nothing but strict temperance and order could have saved him so long in such a whirlpool of toil. He almost lived in the houses of his patients and in his office, and had literally no time for social intercourse with the wide circle of the best society in the city into which he came as the good physician. He encouraged and aided the young physician, and has closed a career of generous use of money for good objects, by a donation of permanent value to his native town.

Vegetable Origin of Diseases.—We are informed that Dr. J. H. Salisbury, of Cleveland, Ohio, whose discovery of cryptogamic spores in intermittent fever has been alluded to in former volumes of this Journal, has a work now in the hands of the publisher, in which he shows that he has also discovered these spores in variola and vaccina, and likewise in typhoid fever. In the first named, the discovery was made in 1862, since which time Dr. S. has been engaged in working up the different phases of this vegetation, and has in consequence delayed publishing till now. The vegetation in typhoid fever he discovered in 1863, and has since embraced every opportunity for further investigation before making his discovery public.

A Cheap Atomizer.—In view of the importance of the treatment by atomized fluids in many affections of the throat and air-passages, we think some of our readers may thank us for calling their attention to the new steam atomizing apparatus of Messrs. Leach & Greene, advertised on our first page. The very low cost at which it can be furnished is only one—if it be a chief one—of its merits.

Middlesex South District Medical Society.—At the annual meeting of this Society, held at Waltham, April 15th, the following officers were elected:—

President—Sam'l Richardson. *Vice President*—Howland Holmes. *Secretary*—Chas. E. Vaughan. *Treasurer*—B. F. D. Adams. *Supervisors*—Josiah Bartlett, J. Pratt, J. C. Harris. *Censors*—C. H. Allen, R. S. Warren, A. E. Hoyt, S. W. Driver, L. R. Stone. *Commissioner on Trials*—Henry Cowles. *Councillors*—Anson Hooker, Enos Hoyt, R. L. Hodgdon, Jeffries Wyman, W. W. Wellington, G. J. Townsend, Morrill Wyman, S. G. Burnap, A. Hosmer, J. E. Tyler, J. L. Sullivan, J. T. G. Nichols, T. P. Robinson. *Orator*—J. T. G. Nichols. *Delegates to the American Medical Association*—Enos Hoyt, Samuel Richardson, A. W. Whitney, A. Mason, John Appleton, J. E. Tyler, E. R. Cogswell, Estes Howe, Jeffries Wyman, A. P. Hooker.

Chas. E. Vaughan, *Sec.*

Extraordinary Case of Recovery after Severe Injury to the Head. Reported by Dr. M. Jewett, Middlebury, Summit County, Ohio.

On the 14th of May, 1867, we were called to see Joel Lenn, a Frenchman, aged 27 years, a coal miner, under the following circumstances:

While blasting coal in the works of Messrs. Cross & Payne, near this village, the blasting barrel (a $\frac{5}{8}$ inch gas pipe four feet in length) struck him near the external angle of the superciliary ridge of the right side, fracturing the bone, broke down the supra orbital plate, protruding the eye considerably, passed through the right anterior lobe of the brain, lacerating the longitudinal sinus, passed through the left middle lobe, and emerged from the head at a point about an inch and a half above and behind the left ear.

The whole of the rod did not pass through the head, but lodged after entering about one-half its length, and was extracted on the spot by his companions, not without considerable difficulty and force, owing to a bend in the portion of the rod in his skull.

For several days he lay in an almost perfect state of coma, with little or no hope of recovery. Cold was applied to the head, the bowels were with difficulty opened, requiring large doses of podophyllum and calomel, and which, with abstinence, had the effect to dislodge an old boarder, in the shape of a tape worm seventeen feet long, for which he had been previously unsuccessfully treated.

The wound was kept open by frequent deep probings, and the head kept in a position, as far as possible, to favor drainage. Fragments of skull, coagulated blood, and broken up brain tissues were freely discharged, which gradually relieved the pressure, and, of course, the coma.

About the twelfth day he began to show signs of consciousness, would take nourishment, and at times would appear to understand what was said to him. A stimulating

treatment was resorted to from the commencement. He gradually improved after the third week, and in eight weeks from the time of receiving the injury, was able to leave his bed. There was, at no time, any marked paralysis.

Physically, he now seems as well as ever. He seems to be perfectly rational, and will reply correctly in *monosyllables* to questions, but is entirely unable to *connect words*. He succeeds best, when excited, in swearing in French. This difficulty shows that that portion of the brain controlling speech was seriously and probably irreparably injured. Up to this date, January 24, 1868, over eight months from the injury, he shows no improvement in this particular. The amount of mental power is also much impaired.

The only case comparable with this, in the amount of brain injury, that I have seen reported, was one by Prof. Bigelow, in the American Journal of the Medical Sciences,* for July, 1850. In that case a tamping rod 3½ feet long, 1¼ inch in diameter, weighing 13 pounds, entered at the angle of the lower jaw, and emerged at the centre of the frontal bone, near the sagittal suture. In that case the missile was much larger, but the portion of brain traversed was not nearly as great as in this.—*West. Journ. of Medicine.*

Cast-Iron Stoves a Cause of Disease.—When the attention of the Academy of Sciences of Paris was drawn, some time since, by M. Carret, one of the physicians of the Hôtel Dieu of Chambery, in several papers, to the possible evil consequences of the use of cast-iron stoves, but little interest was excited in the matter. Recently, General Morin has again brought the subject forward with better success. M. Carret does not hesitate to assert most positively that cast-iron stoves are sources of danger to those who habitually employ them. During an epidemic which recently prevailed in Savoy, but upon which M. Carret does not furnish us with any detailed information, he observed that all the inhabitants who were affected with it made use of cast-iron stoves, which had lately been imported into the country, whereas all those who employed other modes of firing, or other sorts of stoves, were left untouched by the disease. An epidemic of typhoid fever, which broke out some time after at the Lyceum of Chambery, was regarded by the same author as being influenced by a large cast-iron stove in the children's dormitory. General Morin speaks in the highest terms of M. Carret's memoirs, to which the recent experiments of MM. Trorst and Deville give additional importance. These able investigations have established that iron and cast-iron when heated to a certain degree become pervious to the passage of gas. They have been enabled to state the quantity of oxide of carbon which may, as they suppose, transude from a given surface of metal, and have shown that the air which surrounds a stove of cast-iron is saturated with hydrogen and oxide of carbon. They conclude that cast-iron stoves when sufficiently heated absorb oxygen, and give issue to carbonic acid. General Morin related some comparative experiments which had been performed by M. Carret, and which, he said, corroborate this theory. Thus, after having remained during one full hour in a room heated to 40° (centigrade) by means of a sheet-iron stove, M. Carret perspired abundantly, got a good appetite, but felt no sickness whatever; he had obtained the same result with an earthenware stove; but the experiment when performed during only one-half hour with a cast-iron stove, had brought on intense headache and sickness. M. Deville, at the same sitting of the Academy, supported these views with considerable warmth. The danger which attended the use of cast-iron stoves, he said, was enormous and truly formidable. In his lecture room at the Sorbonne he had placed two electric bells, which were set in motion as soon as hydrogen or oxide of carbon was diffused in the room. Well, during his last lecture the two cast-iron stoves had scarcely been lit when the bells began to ring.

These facts are certainly startling, if we consider the reputation of comparative harmlessness which these articles of domestic use had hitherto enjoyed. In France, particularly, the lodgings of the poorer classes, the barrack rooms of the soldiery, the artists' studios, the class-rooms of large schools, etc., are commonly heated by this means. Of course, we are inclined to question M. Carret's conclusions; but the apparently accurate character of the facts recorded, joined to the authority of those who have brought them forward, demand for them a serious investigation. We are glad to be able to add that a committee has been appointed by the Academy for the purpose of examining thoroughly into the subject.

* The case above alluded to occurred in September, 1848, in the practice of Dr. J. M. Harlow, then of Cavendish, Vt., and was first reported by him for this Journal, where it may be found in the issue of Dec. 13th of that year. The patient was, however, examined by Dr. H. J. Bigelow, and a cast of the head and the bar taken for him, which he has used in illustrating his surgical lectures, yearly, in Harvard College.—Ed.

This committee is composed of MM. Claude Bernard, Morin, Freimy, Deville, and Bussy, and we shall not fail, when the time comes, to mention what shall have been the results of their researches.—*Lancet.*

A Case of Ligature of the external Iliac Artery for Aneurism; Secondary Hæmorrhage; Cure.—Joel R—, aged 43, was for nine years and a half in the army, and had served in the Crimea and India. In September, 1866, he over-exerted himself in drawing a cart up an incline, and immediately afterwards noticed a "small beating lump" in the groin. It was then about the size of a marble, but rapidly increased to the time of his admission, November 5th. He worked a week after noticing it.

Condition on admission.—Is a strongly built man, of average height, apparently healthy. In Scarpa's triangle of the left side is a pulsating, expansile tumor, about the size of a large orange, somewhat fusiform, being round in the centre, but tapering towards each end, the upper one reaching to Poupart's ligament. It was five inches long, and three inches in diameter. The circumference of the thigh over the tumor was twenty-one inches and a half, of the sound thigh eighteen inches and a half. The pulsation could be stopped by pressure above the pubes. A loud bruit could be heard in the tumor. The leg was œdematous.

For the first few days after admission, compression above Poupart's ligament, both digital and mechanical, was tried, but he was unable to bear the pain produced, as the pressure could only be applied in one spot. The tumor did not increase, but as the integuments became inflamed, Mr. Bird decided to tie the external iliac.

Nov. 15th —The patient was put under chloroform, and the vessel tied about two inches above Poupart's ligament, being apparently healthy in that spot. The limb was afterwards enwrapped in cotton wool. The man was ordered one grain of opium every three hours.

Nov. 16th.—Pulse 97. Complains of cramp in the leg, which is slightly warmer than the other, and congested. Vomiting commenced during the day, for the relief of which he was ordered effervescing salines and morphia.

17th.—Pulse 76. Temperature in axilla 101°; in sound limb 98.1°; in diseased limb 100.3°. Vomiting and pain continue.

18th.—Pulse 67. Temperature of the leg 98.4°. Pain less, but succeeded by numbness.

21st.—At seven, A.M., he felt something warm trickling down his leg, and on examination he found it was blood. He lost about 4 ounces. It was stopped by pressure and cold.

22d.—The ligature came away to-day; no bleeding.

29th.—The bowels were freely moved, and after using the bed pan another attack of hæmorrhage came on. He lost about an ounce of blood. It recurred in the evening.

Dec. 2d.—Since the last date there has been a constant discharge of pus and blood. This morning, while attempting to get up (in sleep), a sharp attack of bleeding occurred. In the evening he was sick, and this brought on very severe bleeding. Mr. Bird saw him about 10 P. M., and found him very faint and exhausted. The bleeding had then ceased; the wound being made up with clotted blood.

6th.—There was no bleeding from the 2d until this morning, when it suddenly returned, and lasted four or five minutes, during which time he lost a pint of blood. This was the last attack of hæmorrhage. It was evident that on each occasion the blood flowed from the distal end of the vessel, as it could always be controlled by pressure below the wound. There was no pulsation in the aneurism.

Jan. 1st.—The wound has almost healed. The tumor has not diminished in size.

Feb. 12th.—The tumor has slightly decreased, and become very hard. The wound has healed. He got up to-day.

March 2d.—Tumor about the size of a filbert. He left the hospital for his own home to-day.—*Lancet.*

On an Operation for the Relief of a Stricture of the Urethra. By George W. Callender.—The case described was that of a man who had suffered from narrowing of the urethra, and as all attempts to pass a catheter, although aided by the use of a hot bath and opium, had failed, and the symptoms were becoming most severe, the bladder was punctured above the pubes. This operation gave great relief, but subsequently diffuse inflammation of the scrotum supervened, with formation of matter, and requiring free incisions. This treatment had been adopted in Cornwall, where the man lived, but he was eventually sent to St. Bartholomew's Hospital, when three sinuses were seen in the perinæum leading to the urethra, and the opening above the pubes was occupied by a canula, through which the urine was drawn off. Mr. Callender determined to adopt a plan recommended,

but not practised, by John Hunter, for the relief of such a condition, and consisting of the passage of the curved extremity of a canula, from the bladder into the urethra, and then passing another straight canula from the glans down the urethra, so that the two may nearly meet, having the stricture only between them, which is then to be divided by a piercer. Mr. Callender accordingly performed the operation in the manner just indicated, and the result was quite successful, the fistulæ gradually closing, and the urethra admitting the passage of a No. 8 catheter. Before leaving the hospital, however, it was necessary to relieve the bladder of two calculi, which were removed by the supra-pubic opening, and after this was done, the opening closed.—*Med. Chir. Rev.*, from *St. Bartholomew's Hosp. Reports.*

Influence of Marriage on the Duration on Human Life.—Dr. Stark has recently directed attention to the "Influence of Marriage on the Death-rates of Men and Women in Scotland." The following extract, quoted in the London and Edinburgh Monthly Medical Journal of 1841, from the Bulletin Méd. Belge of 1839, will show how many of the most important of Dr. Stark's conclusions have been anticipated:—

"Bellefroid, a Belgian physician, has recently published a statistical memoir, in which he states that marriage greatly increases the probability of life in both sexes. Women, he says, who marry at twenty, have a chance of life eleven years greater than that of those who remain single. The same doctrine holds true, apparently, at all periods of life. The probabilities of life for married men exceed those of bachelors by nineteen years, thus exceeding that of the married female by eight years—a difference probably caused by the mortality resulting from child-birth. Thus, it appears that, from the age of 20 to 30, the mortality of husbands to bachelors is as 1 to 12, whilst that of wives to spinsters is only as 1 to 6 for the same period of life.—*Med. T. & Gaz.*

Diminution of the Sense of Smell in the Old due to Atrophy of the Olfactory Nerves.—M. Prévost has reported to the Société de Biologie the results of his investigations on this subject. He first determined during life the degree of olfactory sensibility, and showed that it is diminished in old age, and then proved by observation that the olfactory nerves are altered in the aged, and that the alteration is in direct relation with the greater or less loss of the special sense. In old age, and especially when the sense of smell is much diminished, the olfactory nerves become slender, semi-transparent and grayish. The olfactory bulb, diminished in size, no longer fills the groove of the ethmoid, and the parts are easily torn. The microscope shows the cause of the atrophy: in the adult, the peduncle contains a large number of nerve tubes; there are, indeed, some amyloid corpuscles, but these are scattered and relatively few. When the nerves are semi-transparent, as in the aged, the nervous fibres are few and in parts completely wanting; but a great accumulation of amyloid corpuscles is seen, collected in groups, pressed close against each other, and especially numerous in the parts where the nerve fibres have disappeared.—*Archives Générales.*

Gratuitous Medical Services.—There is more than a germ of truth in the following extract.

"We are not convinced of the propriety of abolishing all unpaid medical labor in the service of real charity. Medicine cannot afford to lose the claim on society which its open-handed benevolence has given it. It must not quit its professional status and sink to the level of a trade. But we have no scruple in acknowledging that the profession have hitherto run to an opposite extreme. We do not require to be told that the indiscriminate system of unpaid professional work, now in vogue, has given a serious check to the prosperity of the private practitioner, and has damaged the independence and self-reliance of the lower middle and working classes. In fact, medical men are being brought not only to see, but to act upon this conviction. It is well known that there are not the same number of aspirants which there used to be for the privilege of attending three or four hours, twice or thrice a week, at a Dispensary, to prescribe for people, who can afford to pay a moderate sum for advice and medicine."—*Med. Times and Gazette.*

Appointment.—Dr. Charles B. Porter has been appointed Demonstrator of Anatomy in the Medical School of Harvard College.

Dr. James R. Wood has resigned his position as Professor of Operative Surgery and Surgical Pathology in the Bellevue Hospital Medical College, and has since been elected Emeritus Professor of Clinical Surgery, and Prof. W. H. Van Buren Professor of the Principles of Surgery.

Selections and Medical Items.

M. Brunette's Process for Preserving Anatomical Specimens.—We are not aware that any detailed account of this interesting process has yet been published in this country. It consists of several operations, including the washing, the freeing from fat, the tanning, and the desiccation of the specimens. 1. The *washing* is effected by causing a stream of pure water to flow through the bloodvessels and grand ducts; then alcohol is passed through them to get rid of the water. 2 The next part of the process is to get rid of all the fat; this is done by treating it with ether, which is also injected into the vessels. This part of the operation lasts some hours. The specimen may be kept for any length of time plunged in ether, till it is convenient to proceed to the subsequent steps of this process. 3. The *tanning* is effected by first getting rid of the ether by passing a current of distilled water through the vessels, and then injecting them with a solution of tannin in boiling distilled water. 4. It now only remains for the specimen to be dried. For this purpose, a current of perfectly dry and warm air is made to pass through the vessels and ducts by the following means. The specimen is placed in a vessel with a double bottom containing boiling water. The air is contained in a reservoir at about a pressure of two atmospheres; from this it is made to pass through first a tube containing chloride of calcium, and afterwards through a heated tube, and then by a system of tubes into the vessels and ducts of the specimen it is desired to preserve. Thus every trace of moisture is removed. The specimen preserves its volume and its normal relations, and it is light and supple. It can be handled without fear of injury, and can be preserved for an indefinite period.—*Med. Times and Gazette*, Feb. 29, 1868.

Death of Prof. Pirigoff.—The death of this world-renowned surgeon took place a few days ago under extraordinary circumstances. Being at Odessa, Pirigoff was called in consultation to a patient near that city, and on his return was attacked by a gang of highwaymen. He killed two of them, while the others escaped, and he pursued his journey, feeling that he had narrowly escaped the danger of being murdered. But when he reached his house, Pirigoff was seized with symptoms of cerebral congestion, and he soon after expired from the effects of the murderous attack.—*Ibid.*

Russian Association for the Advancement of Science.—It is one of the encouraging signs of the progress now making in Russia that a body similar in its objects to the British, German, French and Italian Associations has recently held its first meeting at St. Petersburg. At present, it has but six sections—anatomy and physiology, zoölogy, botany, mineralogy and geology, physics and chemistry, and astronomy and mathematics. It was attended by 600 persons, 400 of whom were actual members, and wound up its highly interesting meetings with a banquet.—*Ibid.*

The 13th Annual Meeting of the Kentucky State Medical Society was held at Danville, on the 7th and 8th instant. Dr. S. P. Breckenridge, of Danville, welcomed the Society in a brief and appropriate address, in which he alluded to the near vicinity of the office once occupied by Dr. Ephraim McDowell, who there planned and executed the operation of ovariotomy. Reports were made, and a paper read by Dr. L. P. Yandell on Epidemics in Kentucky during the past year. A vote was passed that it was desirable to have a medical journal published in the State; the officers for the year were chosen, and the next meeting appointed at Lexington.

MEDICAL DIARY OF THE WEEK.

Monday, 8, A.M., Massachusetts General Hospital, Med. Clinic; 9, A.M., Medical Lecture. 9, A.M., City Hospital, Ophthalmic Clinic.

Tuesday, 9, A.M., City Hospital, Medical Clinic; 10, A.M., Medical Lecture. 9 to 11, A.M., Boston Dispensary. 10–11, A.M., Massachusetts Eye and Ear Infirmary.

Wednesday, 10 A.M., Massachusetts General Hospital, Surgical Visit. 11 A.M., Operations.

Thursday, 11 A.M., Massachusetts General Hospital, Clinical Surgical Lecture.

Friday, 9, A.M., City Hospital, Ophthalmic Clinic; 10, A.M., Surgical Visit; 11, A.M., Operations. 9 to 11, A.M., Boston Dispensary.

Saturday, 10, A.M., Massachusetts General Hospital, Surgical Visit; 11, A.M., Operations.

A Bulletin of Expected Operations, in both the Hospitals, will be found, weekly, at the office of the Boston Medical and Surgical Journal, and at Messrs. Codman & Shurtleff's, 13 and 15 Tremont Street.

To Correspondents.—Communications accepted:—A Case of Rheumatism, with Chorea.—On False Certificates of Death.—On Quackery.—Embolism and Polypus.

Books and Pamphlets Received.—A Manual of the Dissection of the Human Body. By Luther Holden, F.R.C.S., Lecturer on Anatomy at St. Bartholomew's Hospital. With Notes and Additions by Erksine Mason, M.D., Demonstrator of Anatomy at the College of Physicians and Surgeons, New York. New York: Robert M. DeWitt. 1868.—Odontalgia, commonly called Toothache: its Causes, Prevention and Cure. By S. Parsons Shaw. Philadelphia: J. B. Lippincott & Co. 1868.

Married,—At Cambridge, 6th inst., Henry E. Woodbury, M.D., of Washington, D. C., to Miss Anna Lowell, of C.—In Provincetown, March 25, Dr. Joseph B. Baxter to Miss Susan E. Morris, both of Provincetown.

Died,—In this city, 17th inst., Dr. John Homans, 74.—In New York city, April 8th, Dr. John P. Batchelder, in his 83d year.—At Montreal, Canada, Feb. 22d, Wm. E. Bowman, M.D., formerly Editor of the Canada Lancet, aged 46.

Deaths in Boston for the week ending Saturday noon, April 18th, 1868, 112. Males, 51—Females, 61.—Accident, 5—anæmia, 1—apoplexy, 1—inflammation of the bowels, 2—congestion of the brain, 3—disease of the brain, 6—bronchitis, 3—cancer, 2—consumption, 15—convulsions, 5—debility, 4—dropsy, 4—dropsy of the brain, 3—erysipelas, 3—scarlet fever, 9—typhoid fever, 1—gastritis, 1—homicide, 1—disease of the heart, 3—infantile disease, 3—intemperance, 1—disease of the kidneys, 1—leprosy, 1—disease of the liver, 1—congestion of the lungs, 3—inflammation of the lungs, 5—measles, 2—cerebro-spinal meningitis, 1—old age, 3—paralysis, 1—peritonitis, 1—pleurisy, 1—premature birth, 1—puerperal disease, 4—rheumatism, 1—syphilis, 1—tumor, 1—unknown, 7—whooping cough, 1.

Under 5 years of age, 40—between 5 and 20 years, 8—between 20 and 40 years, 25—between 40 and 60 years, 18—above 60 years, 21. Born in the United States, 68—Ireland, 33—other places, 11.